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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/249,100	02/12/99	HIBI	T Q053271

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EXAMINER	
NGUYEN, N	
ART UNIT	**PAPER NUMBER**
1754	16

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/249,100	HIBI et al
Examiner	**Group Art Unit**
N. M. NGUYEN	1754

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☒ Responsive to communication(s) filed on November 30, 2000.

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-76, 79-85, 87-88 is/are pending in the application.

Of the above claim(s) 1-75, 88 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 76, 79-85, 87 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

DETAILED ACTION

Claims 80-82, 87 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 87, it is unclear what is required by "(mol/g-carrier) per unit weight of a carrier is used as the carrier. Is "a carrier" the same as the "titanium carrier"? Is the limitation in the parentheses positively required? If it is, the "mol/g-carrier" appears to be redundant with "per unit weight of a carrier".

In claim 80-82, it is unclear if the limitation in the parentheses is positively required. It is suggested that the parentheses be deleted.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 76, 79 are rejected under 35 U.S.C. 102(b) as being anticipated by Beer et al (4,585,540).

Beer '540 discloses a porous high surface area composite electroconductive catalytic material comprising a porous preform host catalytic matrix and a subsequently-applied additional catalyst dispersed throughout and supported by the preformed matrix, wherein the preformed matrix is a mixed catalytic material comprising at least one platinum-group metal oxide mixed intimately with at least one non-precious metal oxide in a porous high surface area support structure (note claim 1 and claim 9, item (a)). The porous matrix consists essentially of mixed crystal material of rutile structure (note claim 2). In Example 1 and sample #59 (from Table 2), ruthenium-titanium oxide is disclosed as the mixed catalytic material. The preformed matrix is considered the same as the claimed supported catalyst. It should be noted that the titanium oxide is referred to as "non-precious metal oxide in a porous high surface area support structure" (note item (a) in column 4). In Beer '540, the mixed crystal materials which form the preformed matrix has a single crystalline phase of rutile structure (note paragraph bridging columns 5-6), the titanium oxide used must be in rutile form.

The preform matrix of Beer '540 anticipates the claimed product.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 76, 79-85, 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grätzel '231.

Grätzel '231 discloses a catalyst comprising highly dispersed Ru/RuO_x (x less than or equal 2) on TiO_2 carrier (note Example 1 and claim 1). Grätzel '231 further discloses that in the case of TiO_2, mixture of anatase and rutile forms work very well as support material, however, pure anatase and pure rutile have also yielded good results when used in conjunction with the mixed ruthenium as a catalyst (note column 3, lines 26-31). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use pure rutile form as the support for the catalyst of Grätzel '231 because the rutile form have yielded good results.

For the product-by-process limitations, any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see In re Brown, 173 U.S.P.Q 685, and In re Fessmann, 180 U.S.P.Q. 324.

For claims 80-82, 87, Grätzel '231 does not specifically disclose the amount of "OH" in the titanium dioxide carrier, however, the instant claims are drawn to a final product, not the raw material, i.e. the titanium dioxide carrier or the process of making the catalyst. This limitation can be considered as a product-by-process limitation, see In re Fessmann, In re Brown as stated above. There is no difference seen between the product of Grätzel '231 and the claimed product.

In even if the concentration of the "OH" in the titanium dioxide carrier used in Grätzel '231 does not an "OH" concentration as required in the instant claims, during the process of making the catalyst of Grätzel '231, the product of Grätzel '231 is calcined for at 375°C for 12-18 hours, which condition is similar to that disclosed in the instant application in order to adjust the OH concentration (note page 123 of instant specification, lines 7-13, which stated that the OH group in the titanium carrier is eliminated by heating, and the content of the OH group can be controlled by changing the calcination temperature and calcination time).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to optimize the process condition in Grätzel '231 and in turn the amount of "OH" in the catalyst to obtain the best results, i.e. a catalyst suitable for hydrogenation processes.

Claims 76, 79-85, 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buysch et al (6,001,768).

Buysch '768 discloses a supported catalyst containing, a platinum, a platinum metal compound or a complex containing a platinum metal compound on a support comprising one or more oxides of the metals Ti, V, Mn, Cr, Fe, Co, Ni, Cu, La, Nb, Mo, Pb, the rare earth metals having the atomic numbers from 58-71 and the actinides having the atomic numbers 89-92 (note claim 1).

The support can be TiO_2, preferably in the rutile form (note column 3, lines 56-60). The platinum metal can be Pd, Pt, Ir, Ru or Rh (note column 4, lines 34-36). Buysch '768 further

discloses that it is possible to fix one or more platinum metals by precipitation with a base. Suitable bases are NaOH, LiOH, KOH, etc. (Note column 5, lines 24-55). Thus, there would at least be some "OH" remain in the catalyst of Buysch '768. The catalyst is prepared by methods which are known to those skilled in the art. Thus, solutions of one or more of the platinum metals specified can be applied to the catalyst support (note column 5, lines 16-23), drying (note column 6, lines 22-28), calcining (note column 6, lines 29-45). The calcining step fairly suggests that the platinum metal is present in the catalyst in an oxide form.

For claims 80-82, 87, note the reasons stated above. In Buysch '768, after drying, the dried supported catalysts can be calcined. This can be carried out in air, in vacuo or in a stream of gas. Calcination is carried out at from 100-800°C and the calcination time is generally a few hours, such as 1 to 30 hours (note column 6, lines 29-45).

The difference is Buysch '768 does not specifically disclose an example with rutile titanium oxide as the support and ruthenium oxide as the catalyst material, i.e. the number of embodiments disclosed in Buysch '768 is too large for anticipation.

It would have been obvious to one skilled in the art to select any combination among the specifically disclosed compounds, Merck & Co. Inc. v. Biocraft Laboratory Inc. 10 USPQ 1846.

Claims 76, 79, 83-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beer '540.

Beer '540 discloses a preform matrix as stated in the above rejection.

For claims 83-85, any difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see In re Brown, 173 U.S.P.Q 685, and In re Fessmann, 180 U.S.P.Q. 324.

Applicant's arguments filed November 30, 2000 have been fully considered but they are not persuasive.

Applicants argue that Grätzel '231 is related to a process for the direct formation of methane from carbon dioxide and hydrogen while Applicants' claimed invention is related to a catalyst suitable for the oxidation of hydrogen chloride.

Applicants' claims are drawn to a catalyst, not a catalyst suitable for the oxidation of hydrogen chloride. Even if the intent use was introduced into Applicants' claims, indications of the contemplated filed of use of the claims are not a limitation to be considered in the question of patentability, In re Hack 114 USPQ 162.

Applicants argue that even though Grätzel '231 discloses that the use of pure rutile form of titanium oxide as support material has yielded good results but there is no description or no suggestion that pure rutile of titanium oxide as support material have yielded good results in the oxidation of hydrogen chloride.

Such teaching or suggestion is not needed since Applicants' claims are drawn to just a catalyst, not a catalyst for the oxidation of hydrogen chloride as argued by Applicants (see above comments).

Applicants urge that the declaration demonstrates the superiority of the not less than 80% rutile form of titanium dioxide over 20%.

The showing in the declaration is not persuasive because the catalyst as claimed is not limited to just a catalyst for the oxidation of hydrogen chloride. Unexpected results pertaining to the method of using the catalyst does not render the catalyst itself patentable.

For the OH limitation, note the reasons stated in the above rejection.

Applicants argue that Beer '540 does not teach or suggest that the porous high surface area composite electroconductive catalytic material is suitable for producing chlorine by oxidizing hydrogen chloride.

It should be noted that Applicants' claims do not require anything more than just the catalyst.

Applicants argue that the preformed matrix disclosed in Beer '540 is the mixture of at least one platinum group metal oxide mixed intimately with at least one non-precious metal, and Beer '540 does not disclose supported platinum-group metal oxide on non-precious metal.

When the platinum group metal oxide is supported on non-precious metal, they would be intimately in contact with each other. Applicants have not provided any evidence to show that the mixed catalyst and the supported catalyst have structure differences.

Applicants argue that Beer '540 discloses that the mixed crystal materials, not supporting material, form a single crystalline phase of rutile structure.

In order for the mixed crystal materials to have the single phase of rutile structure, the supporting material would have to have the rutile structure also.

Applicants further argue that the Declaration demonstrates the difference between the claimed catalyst and a mixed catalyst disclosed in Beer '540.

Firstly, the declaration is not applicable for the 102 rejection. Secondly, any difference between the process of using the claimed catalyst and the mixed catalyst disclosed in Beer '540 does not prove that there is a difference between the claimed product and the product of Beer '540.

Applicants argue that Buysch '768 does not teach or suggest that a catalyst as disclosed therein can be used in a process for producing chlorine by oxidizing hydrogen chloride.

Again, Applicants' claims do not require that the catalyst is for producing chlorine. Moreover, intended use is not considered in the question of patentability.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication should be directed to Ngoc-Yen Nguyen at telephone number (703) 308-2536.

The fax phone number for this Group is (703) 305-3599 (for OFFICIAL After Final amendment only) or (703) 305-5408 (for all other OFFICIAL faxes). UNOFFICIAL fax can be sent to (703) 305-6078.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

N. M. Nguyen
February 11, 2001

Ngoc-yen Nguyen
N. M. Nguyen
Primary Examiner
Art Unit 1754